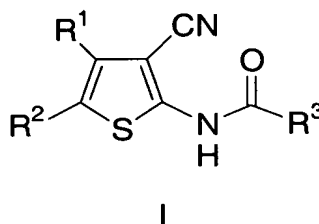


## WHAT IS CLAIMED IS:

1. A compound represented by formula I:



or a pharmaceutically acceptable salt or solvate thereof wherein:

- 5  $R^1$  is selected from the group consisting of: H,  $C_{1-10}$ alkyl, Aryl, Heteroaryl and Heterocyclyl,  
 said alkyl, Aryl, Heteroaryl and Heterocyclyl being optionally substituted with one to four substituents independently selected from  $R^6$ ;
- $R^2$  is selected from the group consisting of: Aryl, Heteroaryl, Heterocyclyl,  
 10  $SO_2NR^4R^5$ ,  $NR^4R^5$ ,  $NR^4C(O)R^5$ ,  $NR^4CO_2R^5$ ,  $NR^4SO_2R^5$ ,  $OR^4$  and  $C_{1-10}$  alkyl substituted with one to four substituents selected from  $R^6$ ,  
 said Aryl, Heteroaryl and Heterocyclyl being optionally substituted with one to four substituents independently selected from  $R^6$ , and
- $R^3$  is selected from the group consisting of:  $C_{1-10}$ alkyl and Aryl, said alkyl and  
 15 Aryl being optionally substituted with one to four substituents independently selected from  $R^6$ ;
- $R^4$  is selected from the group consisting of: H,  $C_{1-10}$ alkyl, Aryl, Heteroaryl, Heterocyclyl, said alkyl, Aryl, Heteroaryl, and Heterocyclyl being optionally substituted with one to four substituents independently selected from  $R^6$ ;
- $R^5$  is selected from the group consisting of:  $C_{1-10}$ alkyl, Aryl, Heteroaryl and  
 20 Heterocyclyl, said alkyl, cycloalkyl, Aryl Heteroaryl, and Heterocyclyl being optionally substituted with one to four substituents independently selected from  $R^6$ ;
- or alternatively,  $R^4$  and  $R^5$  are taken together with the atoms to which they are attached and represent a ring of 5 to 8 members containing 0-2 heteroatoms independently selected from oxygen, sulfur and nitrogen, and optionally substituted with one to four  
 25 substituents independently selected from  $R^6$ ;
- when  $R^2$  represents  $C_{1-10}$  alkyl, each  $R^6$  is independently selected from the group consisting of: halo, Aryl, Heteroaryl, Heterocyclyl,  $OR^7$ ,  $SR^7$ ,  $S(O)_mR^8$ ,  $S(O)_2OR^8$ ,  $S(O)_mNR^7R^8$ ,  $NO_2$ ,  $NR^7R^8$ ,  $O(CR^9R^{10})_nNR^7R^8$ ,  $C(O)R^8$ ,  $CO_2R^7$ ,  $CO_2(CR^9R^{10})_nCONR^7R^8$ ,  $OC(O)R^8$ , CN,  $C(O)NR^7R^8$ ,  $NR^7C(O)R^8$ ,  $OC(O)NR^7R^8$ ,  $NR^7C(O)OR^8$ ,  $NR^7C(O)NR^8R^9$ ,  $CR^7(NOR^8)$ ,  $(CR^9R^{10})_n$ -Aryl,  $(CR^9R^{10})_n$ -Heteroaryl,  $(CR^9R^{10})_n$ -Heterocyclyl,  $CF_3$  and  $OCF_3$ ,
- 30

and when  $R^2$  is other than  $C_{1-10}$  alkyl,  $R^6$  is independently selected from the group consisting of halo,  $C_{1-7}$ alkyl, Aryl, Heteroaryl, Heterocyclyl,  $OR^7$ ,  $SR^7$ ,  $S(O)_mR^8$ ,  $S(O)_2OR^8$ ,  $S(O)_mNR^7R^8$ ,  $NO_2$ ,  $NR^7R^8$ ,  $O(CR^9R^{10})_nNR^7R^8$ ,  $C(O)R^8$ ,  $CO_2R^7$ ,  $CO_2(CR^9R^{10})_nCONR^7R^8$ ,  $OC(O)R^8$ ,  $CN$ ,  $C(O)NR^7R^8$ ,  $NR^7C(O)R^8$ ,  $OC(O)NR^7R^8$ ,  $NR^7C(O)OR^8$ ,  $NR^7C(O)NR^8R^9$ ,  
 5  $CR^7(NOR^8)$ ,  $(CR^9R^{10})_n$ -Aryl,  $(CR^9R^{10})_n$ -Heteroaryl,  $(CR^9R^{10})_n$ -Heterocyclyl,  $CF_3$  and  $OCF_3$ ;

wherein m is 0, 1 or 2 and n is an integer from 1 to 7, and the alkyl, Heterocyclyl, Aryl and Heteroaryl groups and portions are optionally substituted with 1-4 substituents selected from a group independently selected from  $R^{11}$ ;

10  $R^7$ ,  $R^9$  and  $R^{10}$  are independently selected from the group consisting of: H,  $C_{1-7}$ alkyl, Aryl, Ar- $C_{1-10}$ alkyl and mono-, di- and tri- halo substituted Ar- $C_{1-10}$ alkyl,

or one  $R^9$  and one  $R^{10}$  are taken together with the atoms to which they are attached and any intervening atoms and represent a ring of 3 to 8 members containing 0-2 heteroatoms independently selected from O, S and N;

15  $R^8$  is selected from the group consisting of:  $C_{1-10}$  alkyl, Aryl and  $C_{1-10}$ alkyl-Aryl; and

$R^{11}$  is selected from the group consisting of: halo, CN,  $C_{1-4}$ alkyl, Aryl,  $CF_3$  and OH.

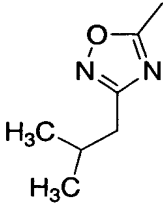
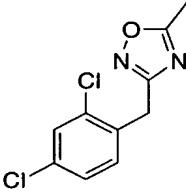
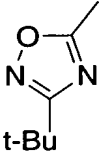
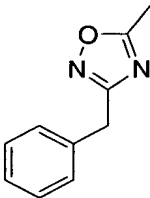
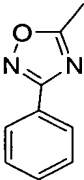
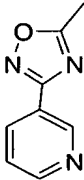
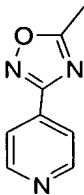
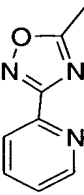
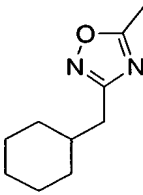
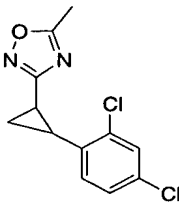
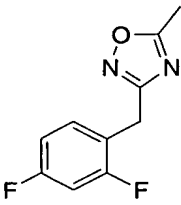
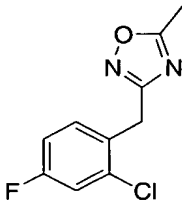
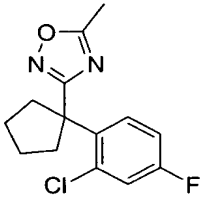
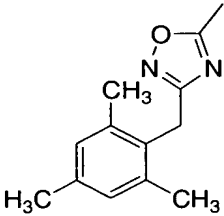
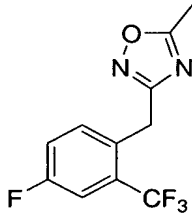
20 2. A compound in accordance with claim 1 wherein  $R^1$  represents  $C_{1-10}$ alkyl.

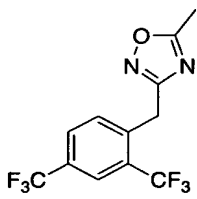
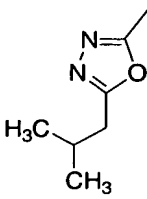
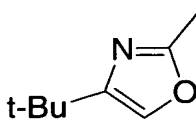
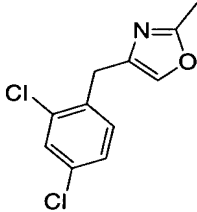
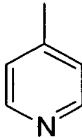
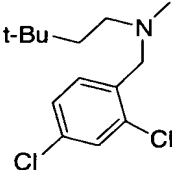
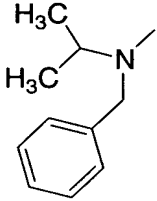
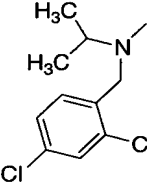
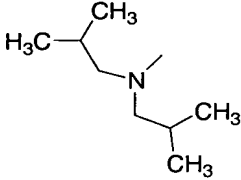
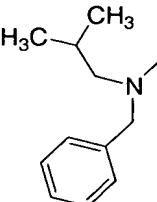
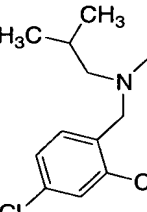
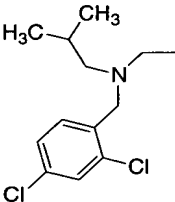
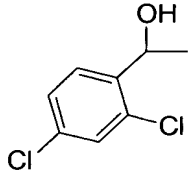
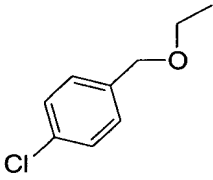
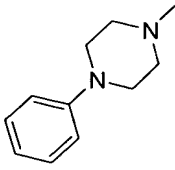
3. A compound in accordance with claim 2 wherein  $R^1$  represents  $C_{1-4}$ alkyl.

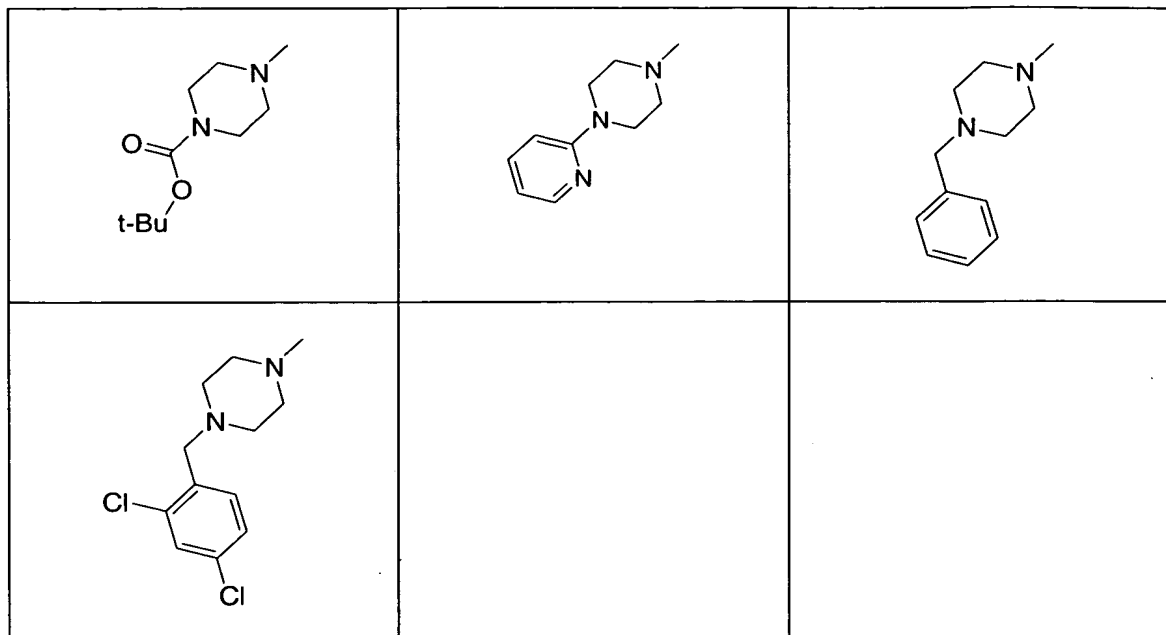
4. A compound in accordance with claim 3 wherein  $R^1$  represents methyl.

25 5. A compound in accordance with claim 1 wherein  $R^2$  is selected from the group consisting of: Heteroaryl or Heterocyclyl, each optionally substituted with 1  $R^6$  group,  $NR^4R^5$ , or  $C_{1-10}$ alkyl substituted with 1-2  $R^6$  groups.

30 6. A compound in accordance with claim 5 wherein  $R^2$  is selected from the table below:

$R^2$		
		
		
		
		
		



7. A compound in accordance with claim 1 wherein  $R^3$  is  $C_{1-10}$ alkyl with 0-1  $R^6$  groups attached.

5 8. A compound in accordance with claim 1 wherein  $R^4$  is H or  $C_{1-10}$ alkyl.

9. A compound in accordance with claim 1 wherein  $R^5$  is  $C_{1-10}$ alkyl having 1-2  $R^6$  groups attached.

10 10. A compound in accordance with claim 1 wherein  $R^2$  represents Heteroaryl or Heterocyclyl, each with 1  $R^6$  group attached selected from the group consisting of:  $C_{1-4}$ alkyl,  $C_{3-7}$ cycloalkyl, Aryl, Heteroaryl, Heterocyclyl,  $OR^7$ ,  $(CR^9R^{10})_n$ -Aryl,  $(CR^9R^{10})_n$ -Heteroaryl and  $(CR^9R^{10})_n$ -Heterocyclyl.

15 11. A compound in accordance with claim 5 wherein  $R^2$  represents  $NR^4R^5$  wherein  $R^4$  is H or  $C_{1-10}$ alkyl, and  $R^5$  is  $C_{1-10}$ alkyl having 1-2  $R^6$  groups attached.

12. A compound in accordance with claim 5 wherein  $R^2$  represents  $C_{1-10}$ alkyl with 1-2  $R^6$  groups attached selected from  $OR^7$ , Aryl, mono-halophenyl and di-halophenyl.

20

13. A compound in accordance with claim 1 wherein:

$R^1$  represents  $C_{1-10}$ alkyl;

$R^2$  represents Heteroaryl or Heterocyclyl with 0-1  $R^6$  groups attached, NR4R5, or  $C_{1-10}$ alkyl with 1-2  $R^6$  groups attached;

$R^3$  represents  $C_{1-10}$ alkyl with 0-1  $R^6$  groups attached;

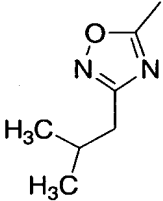
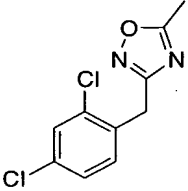
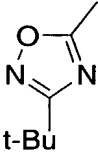
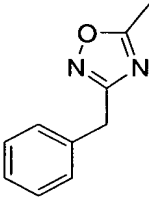
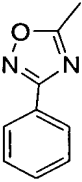
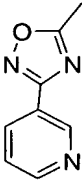
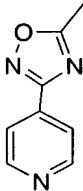
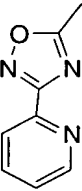
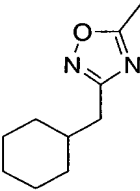
5  $R^4$  is H or  $C_{1-10}$ alkyl;

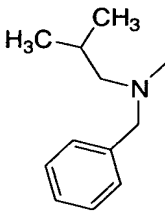
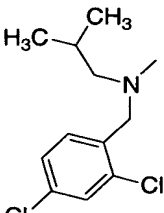
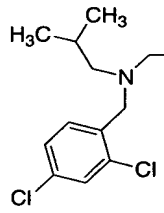
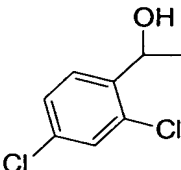
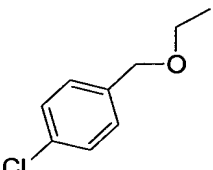
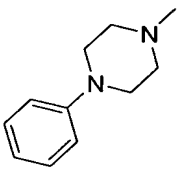
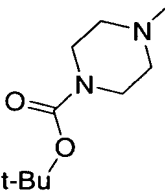
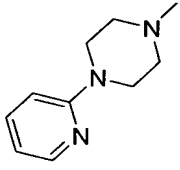
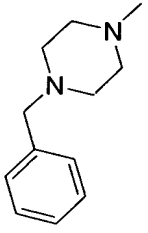
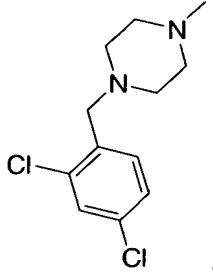
$R^5$  is  $C_{1-10}$ alkyl with 1-2  $R^6$  groups attached, and  $R^6$  through  $R^{11}$  are as originally defined.

14. A compound in accordance with claim 5 wherein:

10  $R^1$  represents methyl;

$R^3$  represents 3-pentyl, and  $R^2$  is selected from the table below:

$R^2$		
		
		
		

15. A compound in accordance with claim 1 selected from the group consisting of:

- N-[3-cyano-5-(3-isobutyl-1,2,4-oxadiazol-5-yl)-4-methylthien-2-yl]-2-ethylbutanamide;  
 5 N-{3-cyano-5-[3-(2,4-dichlorobenzyl)-1,2,4-oxadiazol-5-yl]-4-methylthien-2-yl}-2-ethylbutanamide;  
 N-[5-(3-tert-butyl-1,2,4-oxadiazol-5-yl)-3-cyano-4-methylthien-2-yl]-2-ethylbutanamide;  
 N-[5-(3-benzyl-1,2,4-oxadiazol-5-yl)-3-cyano-4-methylthien-2-yl]-2-ethylbutanamide;  
 N-[3-cyano-4-methyl-5-(3-phenyl-1,2,4-oxadiazol-5-yl)thien-2-yl]-2-ethylbutanamide;



- N-[3-cyano-4-methyl-5-(3-pyridin-2-yl-1,2,4-oxadiazol-5-yl)thien-2-yl]-2-ethylbutanamide;  
 N-[3-cyano-4-methyl-5-(3-pyridin-3-yl-1,2,4-oxadiazol-5-yl)thien-2-yl]-2-ethylbutanamide;  
 N-[3-cyano-4-methyl-5-(3-pyridin-4-yl-1,2,4-oxadiazol-5-yl)thien-2-yl]-2-ethylbutanamide;  
 N-{3-cyano-5-[3-(cyclohexylmethyl)-1,2,4-oxadiazol-5-yl]-4-methylthien-2-yl}-2-ethylbutanamide;  
 5 N-(3-cyano-5-{3-[1-(2,4-dichlorophenyl)cyclopropyl]-1,2,4-oxadiazol-5-yl}-4-methylthien-2-yl)-2-ethylbutanamide;  
 N-{3-cyano-5-[3-(2,4-difluorobenzyl)-1,2,4-oxadiazol-5-yl]-4-methylthien-2-yl}-2-ethylbutanamide;  
 10 N-{5-[3-(2-chloro-4-fluorobenzyl)-1,2,4-oxadiazol-5-yl]-3-cyano-4-methylthien-2-yl}-2-ethylbutanamide;  
 N-(5-{3-[1-(2-chloro-4-fluorophenyl)cyclopentyl]-1,2,4-oxadiazol-5-yl}-3-cyano-4-methylthien-2-yl)-2-ethylbutanamide;  
 N-{3-cyano-5-[3-(mesitylmethyl)-1,2,4-oxadiazol-5-yl]-4-methylthien-2-yl}-2-ethylbutanamide;  
 15 N-(3-cyano-5-{3-[4-fluoro-2-(trifluoromethyl)benzyl]-1,2,4-oxadiazol-5-yl}-4-methylthien-2-yl)-2-ethylbutanamide;  
 N-(5-{3-[2,4-bis(trifluoromethyl)benzyl]-1,2,4-oxadiazol-5-yl}-3-cyano-4-methylthien-2-yl)-2-ethylbutanamide;  
 N-[3-cyano-5-(5-isobutyl-1,3,4-oxadiazol-2-yl)-4-methylthien-2-yl]-2-ethylbutanamide;  
 20 N-[5-(4-tert-butyl-1,3-oxazol-2-yl)-3-cyano-4-methylthien-2-yl]-2-ethylbutanamide;  
 N-{3-cyano-5-[4-(2,4-dichlorobenzyl)-1,3-oxazol-2-yl]-4-methylthien-2-yl}-2-ethylbutanamide;  
 N-(3-cyano-4-methyl-5-pyridin-4-ylthien-2-yl)-2-ethylbutanamide;  
 N-{3-cyano-5-[(2,4-dichlorobenzyl)(3,3-dimethylbutyl)amino]-4-methylthien-2-yl}-2-ethylbutanamide;  
 25 N-{5-[benzyl(isopropyl)amino]-3-cyano-4-methylthien-2-yl}-2-ethylbutanamide;  
 N-{3-cyano-5-[(2,4-dichlorobenzyl)(isopropyl)amino]-4-methylthien-2-yl}-2-ethylbutanamide;  
 N-[3-cyano-5-(diisobutylamino)-4-methylthien-2-yl]-2-ethylbutanamide;  
 N-{5-[benzyl(isobutyl)amino]-3-cyano-4-methylthien-2-yl}-2-ethylbutanamide;  
 N-{3-cyano-5-[(2,4-dichlorobenzyl)(isobutyl)amino]-4-methylthien-2-yl}-2-ethylbutanamide;  
 30 N-{3-cyano-5-[(2,4-dichlorophenyl)(hydroxymethyl)-4-methylthien-2-yl]-2-ethylbutanamide;  
 N-(3-cyano-5-{[(2,4-dichlorobenzyl)(isobutyl)amino]methyl}-4-methylthien-2-yl)-2-ethylbutanamide;  
 N-[3-cyano-4-methyl-5-(4-phenylpiperazin-1-yl)thien-2-yl]-2-ethylbutanamide;  
 tert-butyl 4-{4-cyano-5-[(2-ethylbutanoyl)amino]-3-methylthien-2-yl}piperazine-1-carboxylate;  
 35 N-[3-cyano-4-methyl-5-(4-pyridin-2-ylpiperazin-1-yl)thien-2-yl]-2-ethylbutanamide;

N-[5-(4-benzylpiperazin-1-yl)-3-cyano-4-methylthien-2-yl]-2-ethylbutanamide;

N-{3-cyano-5-[4-(2,4-dichlorobenzyl)piperazin-1-yl]-4-methylthien-2-yl}-2-ethylbutanamide;  
and

5 N-(5-{[(4-chlorobenzyl)oxy]methyl}-3-cyano-4-methylthien-2-yl)-2-ethylbutanamide, as well as  
the pharmaceutically acceptable salts and solvates thereof.

16. A pharmaceutical composition which is comprised of a compound in  
accordance with claim 1 in combination with a pharmaceutically acceptable carrier.

10 17. A method of treating type 2 diabetes mellitus in a mammalian patient in  
need of such treatment, comprising administering to said patient a compound in accordance with  
claim 1 in an amount that is effective to treat type 2 diabetes mellitus.

15 18. A method of preventing or delaying the onset of type 2 diabetes mellitus in  
a mammalian patient in need thereof, comprising administering to said patient a compound in  
accordance with claim 1 in an amount that is effective to prevent or delay the onset of type 2  
diabetes mellitus.